

Annual Fire Weather Operations Report – 2011

National Weather Service Reno, Nevada

1. Meteorologists participating in the Fire Weather Program:

Fire Weather Program Leader: Alex Hoon (IMET)
Fire Weather Program Assistants: Edan Lindaman (GF), Jim Wallmann (IMET), Rhett Milne (WCM),
All operational Forecasters: MIC, WCM, SOO, 5 Senior Forecasters and 6 General Forecasters.

The entire management team and forecast staff at WFO Reno participates in the fire weather program. All staff involved with fire weather forecast and warning operations have completed the required fire weather training.

2. Season Duration

Pre-Season Overview

The region received a very wet winter, with snowpack in the Sierra increasing to its highest level since 1995. Well above normal precipitation from October through December, and again from mid-February through late March, easily overcame a six week dry spell in January and the first half of February. On April 1, Eastern Sierra snowpack totals ranged from 150 to 160 percent of normal, with the Tahoe Basin at 180 percent of normal.

Although brief warm spells occurred at times in April and May, several unusually cold storm systems brought more snow to the Sierra and rain to lower elevations even into early June. As a result, snowmelt in higher elevations was significantly delayed. Snowpack totals on May 1 were still between 150 and 190 percent of normal, with the Tahoe Basin at 210 percent of normal. By June 1, the snowpack in the Sierra was between 220 and 260 percent of normal, except over 450 percent of normal in the Tahoe Basin! In lower elevations, fuels which usually cure in the late spring were too moist to support sustained burning several weeks later than normal.

No large wildfires occurred during the pre-season months.

Forecast Operations

The 2011 fire season began May 15 with Fire Weather Forecasts issued twice per day and dedicated shift coverage 7 days a week.

WFO Reno continues to host a coordination call at 945 am involving local, state, and federal agencies within the Reno CWA. This call occurred every Monday and Friday during the fire season when fuels were sufficiently cured to sustain fire activity, and expanded to additional days if Red Flag conditions were occurring or expected. WFO Reno participated in morning coordination calls with Northern California and/or Southern California GACC on an event-driven basis. After the coordinated end to the

fire season on October 22, the dedicated Fire Weather shift was discontinued and the Fire Weather Forecast changed to a shortened version issued only once a day. NWS Reno continues to provide Spot Forecasts 24 hours a day, 365 days a year.

3. Verification Statistics and Graphs

Red Flag Warnings

See the following tables for red flag warning and fire weather watch statistics.

POD (Probability of Detection), FAR (False Alarm Ratio), CSI (Critical Success Index)

2011 – Reno Total Red Flag Statistics

Total Red Flag Event Days	Red Flag Warnings Issued	Verified Red Flag Warnings	Unverified Red Flag Warnings	Missed Events	Average Lead Time
14	27	15	12	2	20.1

P.O.D.	F.A.R.	C.S.I.
.88	.44	.51

2011 – Reno Relative Humidity and Wind Red Flag Statistics

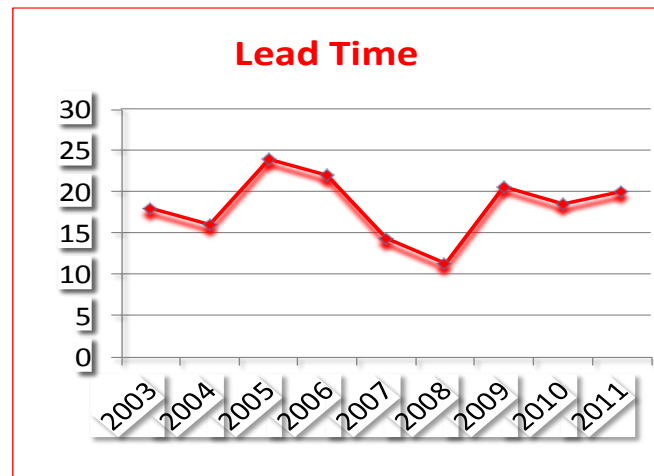
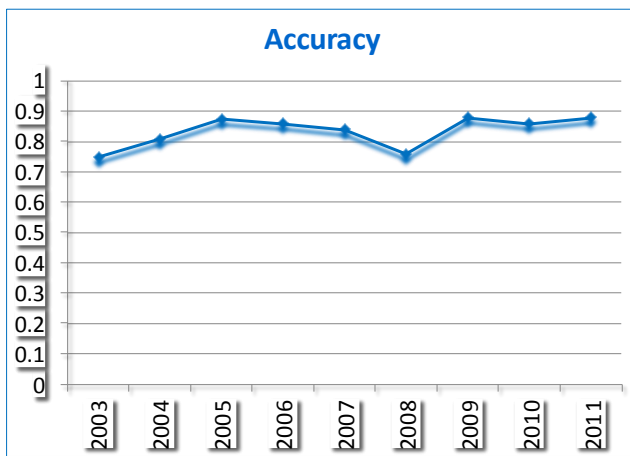
RH and Wind Red Flag Event Days	Red Flag Warnings Issued	Verified Red Flag Warnings	Unverified Red Flag Warnings	Missed Events	Average Lead Time
10	20	12	8	1	23.3

P.O.D.	F.A.R.	C.S.I.
.92	.40	.57

2011 – Reno Dry Lightning Red Flag Statistics

Dry Lightning Red Flag Event Days	Red Flag Warnings Issued	Verified Red Flag Warnings	Unverified Red Flag Warnings	Missed Events	Average Lead Time
4	7	3	4	1	9.88

P.O.D.	F.A.R.	C.S.I.
.75	.57	.38



2011 – Reno Fire Weather Watch Statistics

Watches Issued	Warnings Preceded by Watches	Verified Watches
34	21	11

<i>Dry Lightning</i> Watches Issued	<i>Dry Lightning</i> Warnings Preceded by Watches	<i>Dry Lightning</i> Verified Watches
14	12	6
<i>Relative Humidity and Wind</i> Watches Issued	<i>Relative Humidity and Wind</i> Warnings Preceded by Watches	<i>Relative Humidity and Wind</i> Verified Watches
5	5	5

Additional details are in MS Excel file ***2011REDF.xls.***

The file contains:

Sheet 1: Summary of Red Flag Warnings and Fire Weather Watches.

Sheet 2: Summary of Spot Forecasts and IMET Dispatches.

Spot Forecasts

WFO Reno issued 367 spot forecasts in 2011. 298 of the spots were in support of prescribed burn operations with 65 spot forecasts for wildfires. There were also 3 SAR spots and 1 HAZMAT spot. The average return time on wildfires was 20.8 minutes.

4. Monthly Summary of Weather and Fire Activity in the Reno Forecast Area

For details on large fire activity in the Reno CWA, see the accompanying table titled “Large Fires in Reno CWA for 2011 Fire Season” and “REV Fire History”.

May: Several storm systems and cold front passages occurred during the month producing cool and wet conditions, with additional snow in the Sierra and the Lake Tahoe basin. The most significant precipitation occurred between the 15th and 17th, and again on the 28th, while daytime temperatures were up to 25 degrees below normal during these events. No large wildfires occurred in the month of May.

June: A very wet and cool storm system brought widespread wetting rains to most of the region on June 5-6 with high elevation snow in the Sierra mainly above 8000 feet. While warmer and drier conditions returned to the region during the last two weeks of the month, the pre-existing high fuel moisture delayed the curing of fuels over the region, resulting in limited fire activity.

Only one large fire occurred in June, the “Pleasant Valley” fire in southeast Pershing county which burned 1830 acres.

July: After a warm and dry start to the month, a weak push of monsoon moisture produced isolated thunderstorms in portions of western Nevada and eastern California mainly from Lake Tahoe southward on the 6th. During the second week of the month, a persistent low pressure brought below normal temperatures to the region especially between the 13th and 17th. This low also produced gusty afternoon winds for several days, with Red Flag Warnings issued for the 11th, 12th, 18th, and 19th when very low humidity was also expected. High pressure rebuilt over the region during the third week of the month with temperatures returning to near seasonal normal. Winds again increased with low humidity in place on the 25th, when a Red Flag Warning was in effect. Another push of monsoon moisture produced isolated thunderstorms mainly south of Interstate 80 during the last three days of the month. Although most of the storms were wet, lightning strikes outside the precipitation cores generated some new fire starts, with two becoming large fires.

Seven large fires occurred in July. Most of the large fires burned during the second half of the month, some of which were ignited by lightning. However, the largest fire of the month was the “Nixon” fire south of Pyramid Lake which began on the 2nd and was contained two days later after burning over 11,000 acres.

August: Dry and warm conditions prevailed through most of the month. Red Flag Warnings were issued for isolated to scattered dry thunderstorms on the 1st and 4th in portions of northwest NV, otherwise very few thunderstorms developed across the region for the first three weeks of the month. Winds were generally light with typical afternoon breezes, except for a dry cold front passage on the 14th. A Red Flag Warning was in effect for portions of western Nevada for this event due to gusty winds and low humidity. Weak low pressure off the west coast triggered isolated thunderstorms over portions of western NV on the 24th and again on the 27th.

Although thunderstorms were sparse in August, fire activity increased in western

Nevada and extreme northeast California due to the drying of dense fuels after the wet winter and spring. The largest fire of the month, "Last Chance" burned almost 22,000 acres in remote portions of northwest Pershing County. Two additional large fires in remote portions of western Nevada were ignited by lightning on the 24th.

September: Dry conditions prevailed for most of the month, but some thunderstorms occurred on a few days. Most of the storms were wet, except for isolated dry thunderstorms in northwest Nevada on the morning of the 8th when a Red Flag Warning was in effect. Another Red Flag warning was in effect for Mineral and Lyon counties on the 25th for gusty winds and low humidity. On the last day of the month, numerous thunderstorms with frequent lightning developed over western Nevada and ignited several fires, but most of the storms produced wetting rains which limited fire spread.

All four large fires in September were ignited by lightning, with the largest occurring in a remote portion of central Pershing county on the 13th, burning almost 1500 acres.

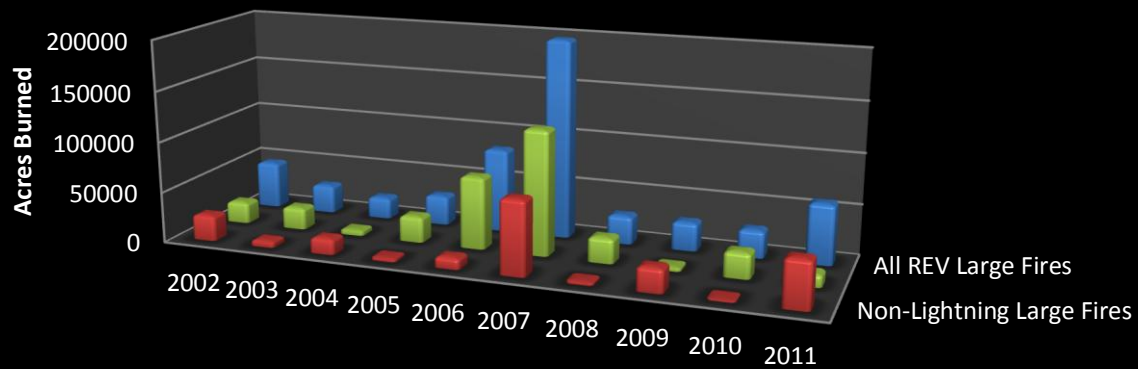
October: Two precipitation events during the ten days of the month led to the conclusion of the peak fire season. The stronger storm occurred on the 5th, bringing wetting rains to most of the region and snow to the Sierra. A second weaker system brought light rain and snow on the 10th. Otherwise, warm and dry conditions prevailed through much of the month, except for a few days of below normal temperatures following a cold front passage on the 25th. No large wildfires occurred in the month of October.

November: A fall season which produced sparse precipitation led to very dry fuels over western Nevada. Although the peak fire season had ended, the most destructive fire of the year occurred on November 18. The "Caughlin" fire in southwest Reno began in the early morning in steep terrain and was driven by high wind gusts up to 70 mph which continued through the day, spreading the fire through a large residential area. 29 homes were destroyed with 8 additional homes damaged before this fire was contained two days later at 1935 acres. In terms of property damage, this fire would become one of the most damaging fires ever to impact Reno. Another large fire burned about 2500 acres in a remote area east of Spanish Springs on the 23rd, but no structures were damaged by this fire.

Extremely dry conditions continued through the remainder of 2011, with much of the region receiving no measurable rain or snow after Thanksgiving.

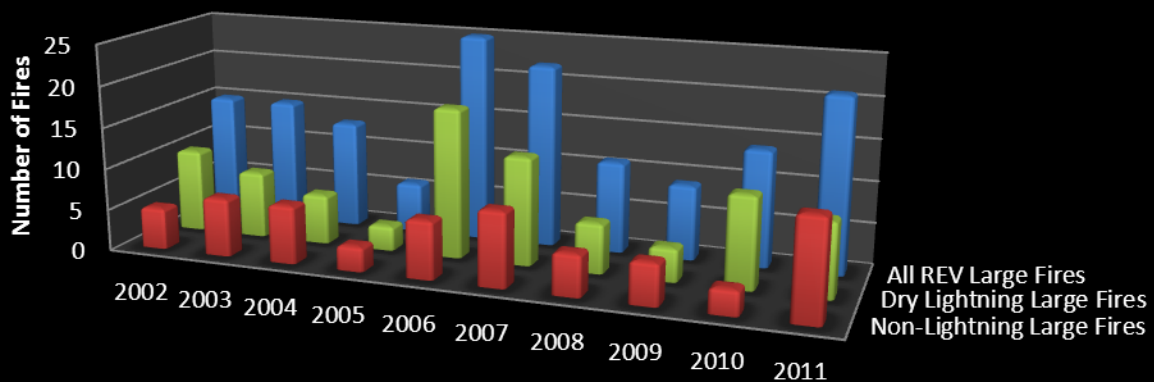
December: Another dry month kept fuels very dry across the region. There was no precipitation recorded during the month of December in Reno, tying the driest December on record since 1870. A dry wind event on December 30th helped to grow a fire east of Carson City. This Laurel Fire grew quickly to around 300 acres, but was caught by fire fighters in the evening as winds subsided.

REV Large Fire Acreage 2002-2011



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
■ Non-Lightning Large Fires	25480	6320	15844	3516	11322	73808	3191	24037	2037	46642
■ Dry Lightning Large Fires	21210	21810	5360	25800	71594	123462	25060	4186	25308	12824
■ All REV Large Fires	46690	28130	21204	29316	82916	197270	28251	28223	27345	59466

REV Total Number of Large Fires 2002-2011



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
■ Non-Lightning Large Fires	5	7	7	3	7	9	5	5	3	12
■ Dry Lightning Large Fires	10	8	6	3	18	13	6	4	11	9
■ All REV Large Fires	15	15	13	6	25	22	11	9	14	21

5. IMET Dispatches

WFO Reno has two certified IMETs on station, Jim Wallmann and Alex Hoon. Alex began the season as a trainee, then became a certified IMET during the dispatch on the Wallow fire.

IMET Dispatches for Jim Wallmann:

1. Stanley (SE Arizona), June 28-30.
2. Comanche (S California), September 11-15.

IMET Dispatches for Alex Hoon:

1. Miller (SW New Mexico), May 15-26 (trainee).
2. Wallow (EC Arizona), June 11-25 (began as trainee, then became certified).
3. Izzenhood/Dunphy Complex, October 3-5.

IMET Dispatches from other WFO's for fires in Reno's CWA:

1. Steve Goldstein (WFO Sacramento CA), Ray May (SC Douglas NV), August 19-22.
2. Dennis Gettman (WFO Medford OR), Annie (NE Modoc CA), August 19-22.

6. Liaison Work and Training

Alex Hoon provides weather briefings at monthly Sierra Front Interagency Cooperators meetings. Agencies present include Humboldt-Toiyabe NF, Tahoe NF, Lake Tahoe Basin Management Unit, BLM, CDF, NDF, BIA, Reno Fire Dept, Sparks Fire Dept, Carson City Fire Dept, and numerous other local fire districts. Several FMOs from the area attend the meetings.

Alex Hoon and Rhett Milne met with Kit Bailey, USFS Lake Tahoe Basin Management Unit, to discuss Red Flag criteria for the Basin. Due to heavy fuels and slow responsiveness to dry conditions, the winds are the primary driver of fire activity in the Basin. Alex put together a proposal to change RFW criteria and sent to the Lake Tahoe Regional Chiefs Association for input/approval.

Alex Hoon setup and facilitated the meeting and presentation for Annual Fire Refresher at Cedarville BLM and for Surprise Valley Volunteer Firefighters.

Alex Hoon and Edan Lindaman organized Fire Weather booth for the Reno Wildfire Awareness Week Community Event. Joined other local Fire Agencies, demonstrating to the public how they can be "Ember Prepared" for Wildland Fire. Over 400 residents attended the event.

Alex Hoon and Rhett Milne prepared Upcoming Weather and Seasonal Outlook for Nevada Division of Forestry. Rhett traveled to Carson City to give the presentation. This was during their annual State-wide NDF Meeting.

Alex Hoon participated in the Sierra Front Coordinators' Sand Table Exercise. Prepared a mock forecast and Red Flag Warnings to simulate the "Clear Creek Fire". Gave weather briefing and spot forecasts, fully involved in the exercise.

Rhett Milne and Edan Lindaman participated in the Wildland-Urban Interface Sand Table Exercise in May. This was an exercise given at the Emergency Operations Center, in conjunction with the Annual Wildland-Urban Interface Conference held in Reno, NV. Fire chiefs from all over the country were in attendance.

Alex Hoon produced WFO Reno Fire Weather brochure to use as an outreach tool, highlighting the new NWS Fire Weather Webpage and WFO Reno Fire Program.

Alex Hoon gave a full-day Weather portion of S-290 Intro to Wildland Fire Behavior in May. Course was given to 30 students at the Lake Valley FPD near South Lake Tahoe, CA.

Alex Hoon gave weather portion of an S-290 Class for the Diamond Mountain Hot shots at the BLM Station near Susanville, CA in April.

Jim Wallmann gave a full-day Weather portion of S-290 Intro to Wildland Fire Behavior in June. Course was given to 30 students in Garden Valley, CA.

Alex Hoon visited Sierra Front Interagency Dispatch in Minden, NV. Discussed changes for the 2011 season.

Alex Hoon visited Susanville and Quincy Dispatch, with Jason Clapp from STO, in November to meet with dispatchers and Center Managers. Discusses changes and events from the fire season and proposals for the 2012 season.

Alex Hoon and Kevin Baker (LKN) attended CA AOP Meeting via teleconference. Alex gave a presentation through Webinar on Elevated Convection.

Alex Hoon, Kevin Baker, and Rhett Milne attended the Western Great Basin AOP Meeting in Feb 2011. GACC Mets visited the WFO, and other NV agencies joined in via teleconference. Steve Vanderberg gave a presentation during the AOP meeting on Elevated Convection.

Alex Hoon organized WFO Reno Annual Fire Weather Workshop. Jim Wallmann and Edan Lindaman facilitated the Workshop, since Alex was on IMET assignment in New Mexico. GACC Mets, Fred and Gina attended and presented GACC products and roles in fire weather to the WFO staff. Local FBAN and Battalion Chief, Sandy Munns, was the guest speaker for the Workshop.

Edan Lindaman prepared a fire weather refresher presentation. She presented to Carson City Fire Department on three separate occasions in June and July 2011.

All forecasters went through a fire weather drill prior to the start of fire season.

Brian Brong continued to maintain the Fire Weather Online Briefing page.